

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



529712

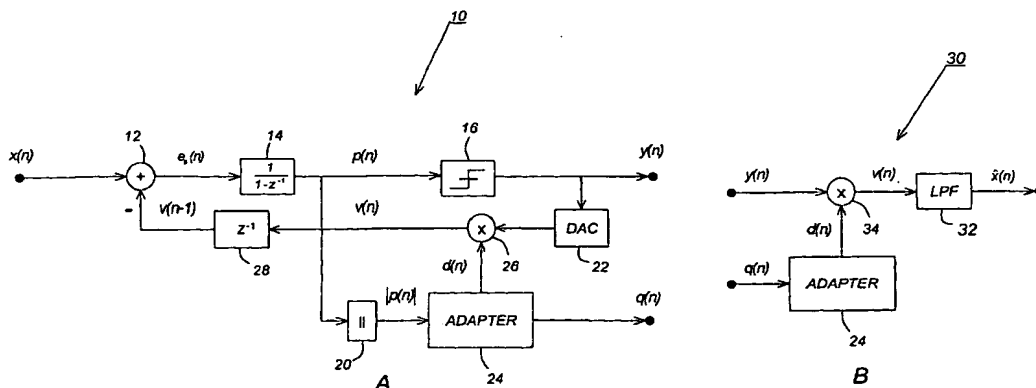
(43) International Publication Date
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number
WO 2004/036754 A2

- (51) International Patent Classification⁷: **H03M**
- (21) International Application Number:
PCT/US2003/032835
- (22) International Filing Date: 15 October 2003 (15.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/418,644 15 October 2002 (15.10.2002) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:
US 10/256,606 (CIP)
Filed on 27 September 2002 (27.09.2002)
US 10/332,750 (CIP)
Filed on 13 January 2003 (13.01.2003)
- (71) Applicant (for all designated States except US): **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, 12th floor, Oakland, CA 94607 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **ALDAJANI, Mansour, A.** [SA/SA]; P.O. Box 1237, King Fahd University, Dhahran 31261 (SA). **SAYED, Ali, H.** [BR/US]; 10811 Ashton Avenue, #313, Los Angeles, CA 90024 (US).
- (74) Agent: **GATES, George, H.**; Gates & Cooper LLP, 6701 Center Drive West, Suite 1050, Los Angeles, CA 90045 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:**
— of inventorship (Rule 4.17(iv)) for US only
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ADAPTIVE MULTI-BIT DELTA AND SIGMA-DELTA MODULATION



(57) **Abstract:** An adaptive multi-bit delta and sigma-delta modulation and demodulation technique, wherein a one-bit modulator generates a binary output signal from an analog input signal and a multi-bit adapter for generating a scaling signal for scaling a step-size of the sigma-delta modulator.

WO 2004/036754 A2